CLAIMS

What is claimed is:

1. A semiconductor device handling apparatus comprising:

a first plate having a first opening therethrough;

a second plate having a first opening therethrough, the first opening of the second plate being substantially aligned with the first opening of the first plate; and

a first flexible membrane disposed between the first and second plates for receiving a first fluid pressure adjacent the first opening of the first plate for causing said membrane to extend outwardly through the first opening of the second plate to immobilize at least one semiconductor device moving adjacent thereto.

2. The apparatus according to claim 1, wherein the first flexible membrane comprises one of latex and a rubber.

3. The apparatus according to claim 1, wherein the first flexible membrane is configured to contact at least one of a plurality of conductive elements on the at least one semiconductor device.

4. The apparatus according to claim 1, further comprising a second opening in the first plate substantially aligned with a second opening in the second plate wherein a second flexible membrane is disposed between the first and second plates and configured to receive a second applied fluid pressure adjacent the second opening of the first plate and to extend outwardly through the second opening of the second plate to contact and immobilize at least one other semiconductor device moving adjacent to the second flexible membrane.

5. The apparatus according to claim 1, further comprising a second opening in the first plate substantially aligned with a second opening in the second plate wherein a second flexible membrane is disposed between the first and second plates and configured to receive a

second applied fluid pressure adjacent the second opening of the first plate and to extend outwardly through the second opening of the second plate to contact at least one semiconductor device.

6. The apparatus according to claim 5, wherein the second flexible membrane is configured to reposition the at least one semiconductor device upon contact therewith.

7. The apparatus of claim 1, wherein the first flexible membrane is further configured to separate at least one semiconductor device from at least one other semiconductor device.

8. The apparatus of claim 1, wherein the first flexible membrane is configured to extend outwardly at an angle substantially perpendicular with a planar surface of the second plate.

9. The apparatus of claim 1, wherein the first flexible membrane is configured to extend outwardly at an angle not perpendicular with a planar surface of the second plate.

10. A handling apparatus for handling IC components comprising:

a first flexible membrane configured to receive an applied fluid pressure on a surface of the first flexible membrane and to expand to contact and immobilize at least one IC component moving adjacent thereto; and

a second flexible membrane configured to receive an applied fluid pressure on a surface of the second flexible membrane and to expand to contact and immobilize at least one IC component moving adjacent to the second flexible membrane.

11. The apparatus according to claim 10, wherein the first flexible membrane comprises one of latex and rubber.

12. The apparatus according to claim 10, wherein the second flexible membrane is configured to contact at least one of a plurality of conductive elements located on the IC component.

13. The apparatus according to claim 10, wherein the second flexible membrane is configured to receive a second applied fluid pressure on a surface of the second flexible membrane and to expand to contact at the least one IC component.

14. The apparatus according to claim 13, wherein the second flexible membrane is configured to separate at least two IC components.

15. The apparatus of claim 10, wherein the first flexible membrane is further configured to separate the at least one IC component from at least one other IC component.

16. An IC device handler comprising:

an input location for receiving a plurality of IC devices;

a pathway along which the IC devices are advanced from the input location;

a first flexible membrane to receive an applied fluid pressure on a surface thereof and to contact at least one of the plurality of IC devices to stop the advancement of the at least one of the plurality of IC devices; and

a second flexible membrane configured to receive an applied fluid pressure on a surface thereof and to contact at least one of the plurality of IC devices to stop the advancement thereof.

17. The handler of claim 16, wherein the pathway comprises a gravity fed track.

18. The handler of claim 16, further comprising a processing station adjacent the at least one flexible membrane wherein the plurality of IC devices are advanced through the processing station via the pathway.

19. The handler of claim 16, wherein the processing station includes at least one of a testing device and a die marking device.

20. An automated IC device handler comprising:

an input location for receiving a plurality of IC devices;

a pathway along which the IC devices are advanced from the input location;

a first flexible membrane configured to receive an applied fluid pressure on a surface thereof and to contact at least one of the plurality of IC devices to stop the advancement of the at least one of the plurality of IC devices; and

a second flexible membrane configured to receive an applied fluid pressure on a surface thereof and to contact at least one of the plurality of IC devices to stop the advancement of at least one of the plurality of IC devices.

21. The handler of claim 20, further comprising a processing station adjacent the at least one flexible membrane wherein the plurality of IC devices are advanced through the processing station via the pathway.

22. The handler of claim 20, wherein the processing station includes at least one of a testing device and a die marking device.

23. A method of handling IC devices comprising:

advancing a plurality of IC devices along a predetermined path;

providing a first flexible membrane adjacent the predetermined path;

providing a second flexible membrane adjacent the predetermined path;

applying a fluid pressure to a surface of the first flexible membrane such that the first flexible membrane extends towards the predetermined path;

contacting at least one of the plurality of IC devices with the first flexible membrane and immobilizing the at least one of the plurality of IC devices; and

applying a fluid pressure to a surface of the second flexible membrane such that the second flexible membrane extends towards the predetermined path.

24. The method of claim 23, wherein contacting the at least one of the plurality of IC devices includes contacting at least one of a plurality of conductive elements located on the at least one of the plurality of IC devices.

25. The method of claim 23, wherein the providing the first flexible membrane includes providing a first and a second flexible membrane.

26. The method of claim 25, wherein the contacting at least one of the plurality of IC devices includes contacting at least one of the plurality of IC devices with the first flexible membrane and contacting at least one other of the plurality of IC devices with the second flexible membrane.

27. The method of claim 23, wherein the applying the fluid pressure to the surface of the first flexible membrane comprises applying a fluid pressure to a surface of the first flexible membrane for contacting and immobilizing the at least one of the plurality of IC devices and wherein the method further comprises applying a fluid pressure to a surface of the second flexible membrane such that the second flexible membrane contacts and repositions the at least one IC device of the plurality of IC devices subsequent the immobilization thereof.

28. The method of claim 27, further comprising releasing the applied fluid pressure.

29. The method of claim 27, further comprising advancing the at least one of the plurality of IC devices along the predetermined path and away from the first flexible membrane subsequent to the release of the applied fluid pressure.

30. The method of claim 29, further comprising reapplying fluid pressure to the surface of the first flexible membrane and contacting and immobilizing at least one other of the plurality of IC devices subsequent to the release of the release of the applied fluid pressure.